



Invisible Ink Printer

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TOOLS:

- [C-clamp \(1\)](#)
- [Chisel \(1\)](#)
- [Cups \(1\)](#)
for mixing
- [HP inkjet printer \(1\)](#)
- [Hacksaw \(1\)](#)
- [Latex gloves \(1\)](#)
- [X-Acto knife \(1\)](#)



PARTS:

- [Color ink cartridge \(1\)](#)
- [Paper towels \(1\)](#)
- [Crystallized lemon juice \(15 packets\)](#)
- [Zip-lock bag \(1\)](#)
- [Iodine tincture \(1\)](#)
- [Electrical Tape \(1\)](#)

SUMMARY

Lemon juice has been used as invisible ink for centuries. Messages written in lemon juice are invisible to the naked eye. However, when brushed with a mix of iodine and water, they become quite visible.

You can use an updated version of this technique by modifying an HP ink cartridge so that it prints in lemon juice instead of ink. Here's how to do it.

Step 1 — Open the cartridge.



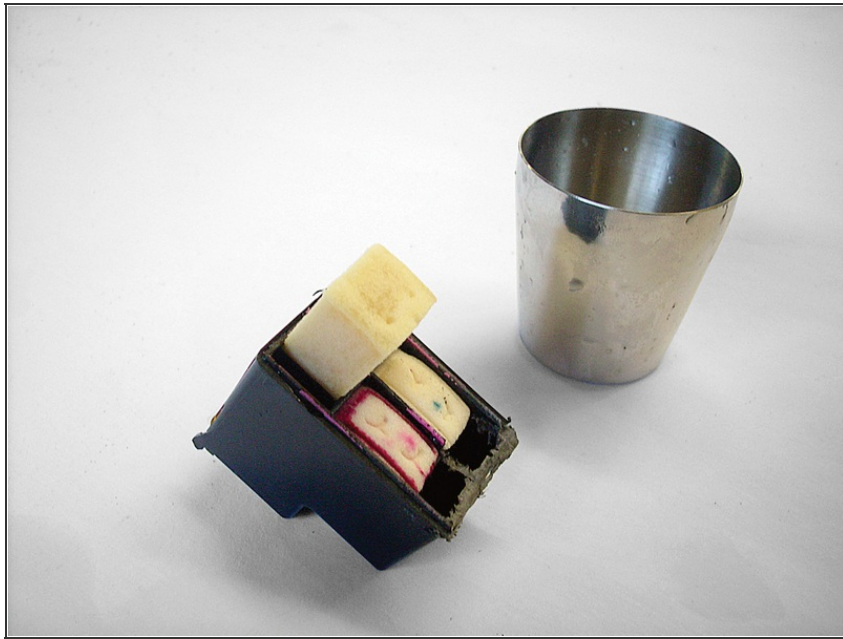
- Clamp the HP ink cartridge to a workbench, with the leads facing down. Use a hacksaw to cut a ¼" groove into the cartridge, at the gap between the purple lid and the black case. Insert a chisel into the cut, and pry the lid open. Take off the lid.

Step 2 — Clean out the yellow ink.



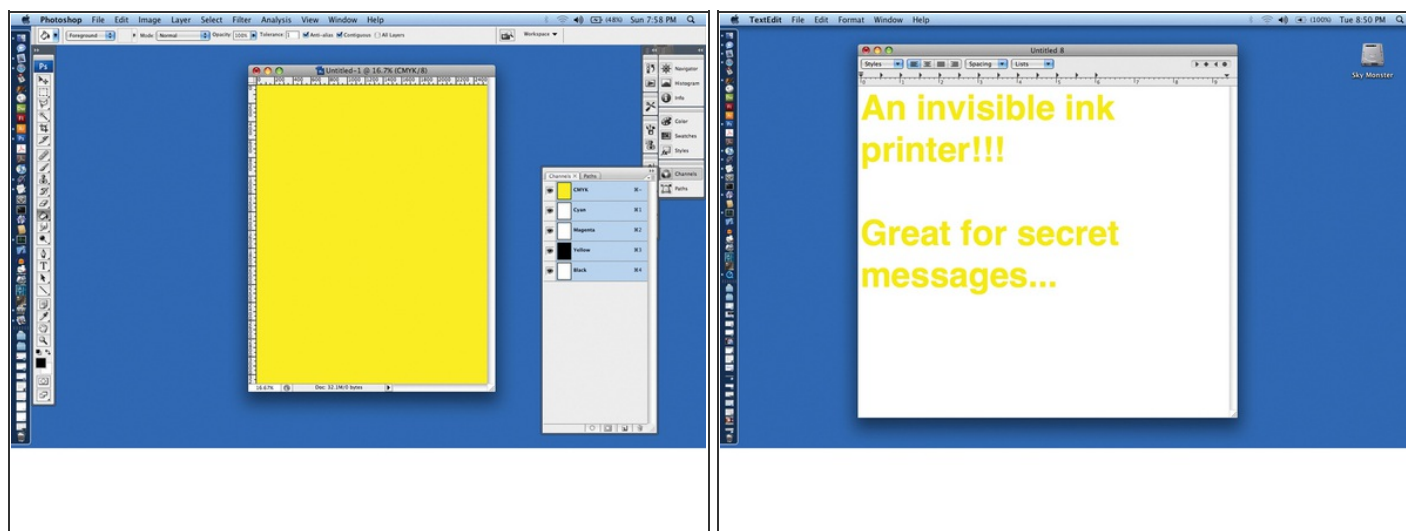
- The ink will stain skin, so wear gloves. Use an X-Acto knife to remove the yellow ink sponge from the cartridge. Wash the sponge in a sink until the water runs clear. Squeeze out the sponge, and put it aside.
- Take a paper towel, and use it to clean the ink from the sponge holder in the cartridge. Repeat this, getting all the way to the bottom, until the towel comes out clean.

Step 3 — Make the invisible ink.



- Fresh-squeezed lemon juice is not strong enough to work as invisible ink in a printer, so you'll need to make a concentrated mixture. Do this by using True Lemon crystallized lemon powder. Add 4tsp of water to a mixing cup, and then pour in 15 True Lemon packets. Stir until the powder is dissolved. Soak the sponge in this mixture for 10 minutes. Make sure it's completely saturated. Push the sponge back into the cartridge. Replace the cartridge lid and seal it shut with electrical tape.

Step 4 — Print the invisible ink document.



- Put the modified cartridge in your printer. Create a solid yellow image at letter size, 8½×11. Keep printing this until no yellow ink appears on the prints. Once the pages look empty, the printer is printing only in lemon juice, and you're ready to go!
- To make a secret message, print the documents with solid yellow text and images. The yellow areas will print in lemon juice, and will be invisible to the naked eye.
- TIP: Once you're done using your invisible ink cartridge, wrap it in plastic and put it in a zip-lock bag; otherwise, it will dry out.



Step 5 — Expose the invisible ink.

- To reveal your secret message, make a mixture of 1 part iodine tincture to 10 parts water. Brush it over the page. The message will remain white, while the rest of the page will turn pale blue!

This project first appeared in [MAKE Volume 16](#), page 92.

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